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# **Sandia National Laboratories, California Environmental Planning and Ecology Program Annual Report for Calendar Year 2005**



**B. L. Larsen**

Prepared by  
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Livermore, California 94550

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# **Sandia National Laboratories, California Environmental Planning and Ecology Program Annual Report for Calendar Year 2005**

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## **ABSTRACT**

The annual program report provides detailed information about all aspects of the Sandia National Laboratories, California (SNL/CA) Environmental Planning and Ecology Program for a given calendar year. It functions as supporting documentation to the *SNL/CA Environmental Management System Program Manual*. The 2005 program report describes the activities undertaken during the past year, and activities planned in future years to implement the Planning and Ecology Program, one of six programs that supports environmental management at SNL/CA.

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# 1 Program Description

The Environmental Planning and Ecology Program (Planning and Ecology) is one of six programs under the Environmental Management Department at Sandia National Laboratories, California (SNL/CA). The program oversees activities associated with the National Environmental Policy Act (NEPA), ecological resources, and cultural resources. Planning and Ecology is part of the SNL/CA Environmental Management System (EMS), and maintains responsibility for general environmental reporting that spans all six program areas. It is an indirectly funded program, supported through the Integrated Enabling Services Strategic Management Unit.

This program report provides detailed information about all aspects of Planning and Ecology operations. It functions as supporting documentation to the *SNL/CA EMS Program Manual*. The Program Report is updated annually to reflect the dynamic nature of program operations, accomplishments, and goals.

## 1.1 NEPA

Under NEPA, all Federal agencies are required to evaluate the impacts of their proposed actions on the environment. In 2003, DOE issued the *Final Site-Wide Environmental Assessment of the Sandia National Laboratories, California* (SWEA) and Finding of No Significant Impact (FONSI). The SWEA evaluates the impacts of site operations over a ten-year period, and the FONSI concludes that continuation of site operations is not a major federal action significantly affecting the quality of the human environment.

Each year, Planning and Ecology evaluates the bounding impact scenario presented in the SWEA for continued applicability to site operations. Actual site data is compiled and compared against the projected impacts. Where actual operations exceed, or are close to, projected operations, relevant impact areas are further evaluated to determine if impacts have occurred or are projected to occur in future years. The information from this comparison can then be used to change site activities and minimize or eliminate environmental impacts resulting from site operations. This comparison is presented in the annual site environmental report.

At SNL/CA, new projects or programs and significant changes in existing projects or programs are subjected to an internal NEPA review. All NEPA reviews are accomplished electronically, using the ISMS NEPA Module ([http://www-irm.sandia.gov/iss/isms\\_software/runnepa.htm](http://www-irm.sandia.gov/iss/isms_software/runnepa.htm)). The member of the workforce responsible for NEPA compliance (e.g., the principle investigator or action owner) completes the electronic project information form and submits it for review to the NEPA Subject Matter Expert (SME). The NEPA SME determines if the project falls within the scope of an existing NEPA document or if it requires a DOE NEPA review. The majority of projects proposed at SNL/CA fall within the scope of the SWEA. Actions that are not covered by existing NEPA documentation are submitted electronically to the DOE/Sandia Site Office (DOE/SSO) for a NEPA determination. Planning and Ecology can provide a recommendation for the NEPA determination, but DOE/SSO makes the final determination.

The NEPA review process supports identification of potential environmental impacts associated with proposed actions. Through the ISMS NEPA Module, an action owner is directed to complete a series of questions specifically designed to identify impacts. Because NEPA reviews are conducted during project planning, mitigation measures can be implemented to minimize or eliminate impacts before an action begins.

## **1.2 Ecological Resources**

SNL/CA provides habitat for a range of wildlife species and maintains a 106-acre wildlife reserve. The wildlife-reserve was designated as part of the Endangered Species Act consultation process with the US Fish and Wildlife Service (USFWS) (commonly referred to as Section 7 Consultation). The wildlife reserve is shown on Map 1 included in Appendix A. Disturbance in the wildlife reserve is minimal and includes routine mowing and weed control for fire management, and access by Planning and Ecology to conduct wildlife surveys.

Arroyo Seco, which traverses SNL/CA from southeast to northwest, is another ecological resource at the site. An established riparian area containing many native trees and other vegetation is present along the eastern stretch of the arroyo within the wildlife reserve. Arroyo improvements and habitat enhancements are planned as part of an existing Arroyo Seco Improvement Program expected to be completed over a ten-year period.

Planning and Ecology conducts wildlife and habitat monitoring to document species diversity and richness at the site, and to keep abreast of listed and sensitive plants and animals found at SNL/CA. Early identification of threatened, endangered, and sensitive species allows Planning and Ecology to evaluate appropriate protections that will minimize or eliminate impacts to these species and their habitats. Planning and Ecology uses monitoring data to establish requirements to address potential project-specific short-term effects as well as potential long-term effects from site operations. SNL/CA also uses monitoring information to enhance campus safety for personnel and visitors by reducing the potential for wildlife/human encounters.

Wildlife monitoring is conducted year-round to document species living and foraging on site. Monitoring is accomplished with field surveys, trapping, track stations, fence line checks, and the use of trail cameras. SNL/CA uses a variety of field survey methods including visual observation, bird counts, transect surveys, aquatic surveys, protocol surveys, and nest/den identification. SNL/CA also monitors specifically for areas where mountain lions could access the developed areas of the site. When identified, access points are closed to reduce the potential for a lion to enter human occupied areas.

Planning and Ecology visually monitors habitat conditions throughout the year while conducting field surveys. Changes in habitat conditions and wildlife use are tracked. This information, together with wildlife monitoring data, is used to identify habitat enhancement measures in appropriate areas at the site.

Monitoring of plant species at SNL/CA is completed every five to ten years, as needed for updating site-wide NEPA impact analyses. Because there are no threatened or endangered plant

species at SNL/CA, annual monitoring is not done. The most recent plant survey was completed in 2001.

### **1.3 Cultural Resources**

Two cultural resource assessments have been conducted at SNL/CA. A complete site assessment for historic resources was completed in 1990. No historic or prehistoric resources were identified during the 1990 assessment. In 2001, SNL/CA completed an historic building survey. None of the buildings at SNL/CA were identified as historically significant or eligible for the National Register of Historic Places.

Although there are currently no known cultural resources present on site, the 1990 assessment did identify the potential for buried resources at SNL/CA that could be unearthed during construction and excavation activities. Sandia's construction specifications outline special procedures for preservation of cultural resources, should any be unearthed during a project. In 2005, Sandia prepared a Cultural Resources Management Plan (CRMP) to outline, in general, the process that would be followed for inadvertent discovery of buried resources.

### **1.4 Environmental Reporting**

Planning and Ecology maintains responsibility for preparing and distributing environmental reports that span all environmental program areas. These include the annual site environmental report (a DOE requirement), SNL/CA input for the Sandia corporate ES&H report (a corporate requirement), and the quarterly environmental scorecard (a best management practice). These reports provide environmental information to DOE, site personnel, and external stakeholders. Additional information about these reports is provided in Section 4.

### **1.5 EMS Core Team Responsibilities**

Planning and Ecology is responsible for documenting EMS program development, implementation, and improvement in the *SNL/CA EMS Program Manual*, which is updated annually. The Planning and Ecology Program Lead is an active member of the EMS Core Team, assists with setting environmental objectives and targets, maintains responsibility for developing and updating project schedules, and coordinates EMS Core Team activities.

## **2 Program Drivers**

Environmental compliance drivers include laws, regulations, orders, directives, and other corporate and site-specific requirements. Drivers that are applicable to Planning and Ecology are listed and summarized in Table 1.

Planning and Ecology uses a variety of sources to stay current on applicable compliance drivers. The primary source used is the Sandia corporate notification service provided by the legal staff. Sandia legal monitors DOE requirements and federal, state, and local government publications for regulatory issues applicable to SNL operations. Planning and Ecology receives notifications weekly, which are then reviewed for applicability to SNL/CA operations. Planning and Ecology



also receives and reviews the *California Environmental Insider*, a California-specific publication, issued twice per month, which summarizes current regulatory issues and changes that affect activities in the state. Both federal and state issues of concern are addressed in this publication. Additional sources of information on regulatory changes include direct communication with DOE and regulating agencies, and periodic review of agency web sites. New requirements are incorporated into program activities and communicated to the site through electronic notifications, the ES&H Interdisciplinary Team process, self-assessments, and targeted presentations.

During 2005, several changes occurred in compliance drivers applicable to Planning and Ecology responsibilities. In August 2005, the U.S. Fish and Wildlife Service (USFWS) issued a new survey protocol for the California red-legged frog. The new protocol requires the following:

- *To avoid and minimize the potential of harassment or harm to red-legged frogs, no additional surveys will be conducted in an area once occupancy has been established, unless the surveying effort is part of a Service-approved project to determine actual numbers of frogs at a site.*
- *The Service should be notified in writing (e.g., email) by the surveyor within three (3) working days once a red-legged frog is detected. The Service will provide guidance to the surveyor regarding the need to collect additional information such as population size, age class, habitat use, etc. (This requirement is consistent with the reporting requirements identified in the biological opinion.)*

In November 2005, the USFWS issued an updated proposed rule for designation of critical habitat for the California red-legged frog. Under this latest proposal, SNL/CA was excluded from proposed critical habitat for the species. The proposed rule is expected to become final in 2006.

On July 14, 2005, SNL/CA received authorization from the U.S. Army Corp of Engineers (ACOE) to conduct five tasks under the Arroyo Seco Improvement Program (Task Numbers 1, 3, 10, 12, and 13). The ACOE determined that these five tasks qualify for authorization under the Department of the Army Nationwide Permit 13 for Bank Stabilization. The authorization is valid until March 18, 2007 and includes compliance with all mandatory terms and conditions listed in the biological opinion received from the USFWS.

On January 4, 2006, Planning and Ecology requested and received a Sandia legal interpretation of the California Fish and Game Code Sections 4150-4154, with respect to actions that SNL/CA could take to reduce the California ground squirrel population on site. The ground squirrel is a non-game native species in California, and abundant at SNL/CA. Sandia's legal interpretation of the code allows SNL/CA to remove ground squirrels on the site interior where they are causing damage to facilities and infrastructure. However, removal of ground squirrels in the outer perimeter area where damage is not occurring to facilities or infrastructure would not be consistent with the code.

**Table 1 Compliance Drivers for Environmental Planning and Ecology Program**

<b>Driver / Effective Date</b>	<b>Summary</b>	<b>Regulating Authority</b>
<b>Federal Laws</b>		
National Environmental Policy Act (NEPA) / 1969	National charter for protection of the environment, requires all federal agencies to evaluate the affects of agency actions on the human environment (physical, socioeconomic, and cultural)	Council on Environmental Quality, Executive Office of the President (CEQ)
National Historic Preservation Act / 1966	Requires federal agencies to consider potential effects of agency actions on cultural resources	National Park Service
Archaeological Resources Protection Act / 1979	Provides for protection of archaeological resources and to prevent looting and destruction of resources	Department of Interior
Endangered Species Act / 1973	Provides for the designation and protection of wildlife and plant species, requires federal agencies to consult on projects with the potential to affect threatened and endangered species	USFWS
Migratory Bird Treaty Act / 1916	Provides for protection of migratory bird species	USFWS
<b>Federal Regulations<sup>a</sup></b>		
10 CFR 1021 DOE NEPA Implementing Procedures / 1997	NEPA procedures for DOE facilities	DOE
40 CFR 1500 – 1508, CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act / 1978	Provides requirements for federal agencies to implement NEPA	CEQ
36 CFR 800, Protection of Historic Properties / 2000	Procedures define how federal agencies meet statutory responsibilities for historic preservation	Delegated to State Historic Preservation Office
50 CFR 17, Endangered and Threatened Wildlife and Plants / 2004	Identifies protected species and habitat	USFWS
50 CFR 402, Interagency Cooperation – Endangered Species Act / 1986	Procedures for consultation process with Fish and Wildlife Service	USFWS
10 CFR 1022, Compliance with Floodplain and Wetlands Environmental Review Requirements / 2003	DOE procedures for complying with Executive Order 11988 and 11990, DOE policy regarding consideration of floodplain/wetlands factors in planning and decision-making	DOE
<b>Executive Orders (EO)</b>		
EO 11593, Protection and Enhancement of the Cultural Environment / 1992	Details the responsibilities of federal agencies to preserve, restore, and maintain the historic and cultural environment	DOE as responsible federal agency for SNL facilities
EO 11988, Floodplain Management / 1977	Directs federal agencies to reduce the risk of flood loss, minimize impact to human safety, preserve natural value of floodplains, requires federal agencies to evaluate affects of agency actions on floodplains	DOE as responsible federal agency for SNL facilities
EO 11990, Protection of Wetlands / 1977	Directs federal agencies to minimize destruction, loss, or degradation of wetlands and to evaluate affects of agency actions on wetlands	DOE as responsible federal agency for SNL facilities

<b>Driver / Effective Date</b>	<b>Summary</b>	<b>Regulating Authority</b>
EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations / 1994	Requires federal agencies to consider the affects of agency actions on minority and low-income populations	DOE as responsible federal agency for SNL facilities
EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds / 2001	Details the responsibilities of federal agencies to protect migratory birds	DOE as responsible federal agency for SNL facilities
<b>DOE Directives</b>		
Order 450.1, chg 1, Environmental Protection Program / 2005	Outlines the basic strategy for environmental compliance at DOE facilities, requires DOE facilities to implement an EMS that addresses protection of site resources and long-term stewardship of these resources	DOE
Policy 141.1, Management of Cultural Resources / 2001	Establishes requirement for Cultural Resources Management Plan for all DOE sites	DOE
Order 231.1A, Environment, Safety, and Health Reporting / 2003	Requires collection, reporting, analysis, and dissemination of information on ES&H issues at DOE facilities	DOE
<b>California Laws and Regulations<sup>a</sup></b>		
California Endangered Species Act / 1984	Provides for the designation and protection of wildlife and plant species in California	California Department of Fish and Game
California Fish and Game Code	Details the requirements related to all aspects of wildlife and habitat in California	California Department of Fish and Game
14 CCR Division 1, Subdivision 3, Chp. 6 / 1998	Implementing regulations for the California Endangered Species Act	California Department of Fish and Game
California Environmental Quality Act / 1970	Requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, applicable to SNL/CA operations through state and local agency permitting processes	State / local agencies issuing permits or approvals
<b>Other Requirements</b>		
CPR 400.1.2, Integrated Safety Management System Description / 2005	Defines the requirement to implement NEPA at all SNL locations	SNL
Biological and Conference Opinion for SNL/CA Operations / 2004	Details the requirements for protection of listed species and critical habitat at SNL/CA established through consultation under Section 7 of the Endangered Species Act	USFWS
SNL/CA Requirements for Interacting with Wildlife / 2003	Defines the do's and don'ts of interacting with wildlife at SNL/CA to ensure safety of the workforce and respect for wildlife	SNL/CA VP
No-till policy / 2000	Ensures protection of ground-dwelling amphibians in the outer perimeter areas of SNL/CA	DOE

<sup>a</sup> The effective date for federal and state regulations represents the most recent revision.

Planning and Ecology is audited occasionally by DOE, Sandia Corporation, and Lockheed Martin, Sandia's parent company. There are no recurring audits of the program from external regulating agencies. As part of an overall ES&H audit conducted by Lockheed Martin, Planning and Ecology was last audited in December 1996. For Planning and Ecology, the focus of the audit was on NEPA. Results of the audit found the NEPA program to be commendable.

The Program Lead communicates with SSO counterparts regularly to keep them informed of issues and trends of importance to the program. Program staff works side-by-side with SSO to resolve concerns and to develop effective approaches to program implementation. Planning and Ecology and SSO maintain an open and cooperative relationship.

### 3 Operational Controls

Planning and Ecology uses technical work documents, administrative and engineered controls, and specialized equipment as operational controls. Table 2 lists the technical work documents applicable to Planning and Ecology operations. They include the corporate ES&H manual, operating procedures, preliminary hazard screening documents, hazard assessments, and other site-specific requirements. Fences are used as engineered controls to minimize contact between the site population (visitors and employees) and wildlife. Administrative controls include access lists to the outer perimeter areas where encounters with wildlife are highest. Trail cameras function as specialized equipment to provide information on wildlife. This information is used to assess safety conditions in the outer perimeter areas of the site and to support decisions to delay or proceed with wildlife surveys during night hours.

Sandia also includes an administrative control in many project-funding processes to trigger a NEPA review before a project starts. NEPA triggers are included in processes for work-for-others, laboratory directed research and development, cooperative research and development agreements, integrated contract orders, defense programs, and construction programs.

**Table 2 Technical Work Documents for the Environmental Planning and Ecology Program**

<b>Title</b>	<b>Current Version</b>
OP471343, Operating Procedure for Conducting NEPA Reviews at SNL/CA	Issue I, 2005
PHS SNL3A00248-004, Environmental Planning and Ecology Program at SNL/CA	January 2006
Hazard Assessment, Wildlife Surveys	2004
OP471793, Operating Procedure for Safely Conducting Wildlife Surveys in the Outer Perimeter Area of SNL/CA	Issue C, 2005
ES&H Manual, Section 10B, NEPA, Cultural Resources, and Historic Properties	November 2005
ES&H Manual, Section 10C, Migratory Birds, Protected Species, and Other Biota	February 2006
SP473544, Standard Operating Procedure for Roof Access	Issue A, 2005
Mountain Lion Action Plan	April 19, 2004
SNL/CA Requirement for Interacting with Wildlife	June 17, 2003

### 4 Documents Produced

Table 3 identifies the documents and reports generated by Planning and Ecology. Two new documents and two additional reporting requirements were added in 2005. New documents include a Cultural Resources Management Plan, completed in November 2005, and this document, the Annual Environmental Planning and Ecology Program Report initially completed in June 2005. New reporting requirements include submittal of species observation forms to the California Natural Diversity Database (CNDDDB) for listed species and California species of concern. In 2005, SNL/CA submitted 17 CNDDDB forms. There were no significant changes to other documents or reports in 2005.

**Table 3 Environmental Planning and Ecology Program Documents and Reports**

<b>Document</b>	<b>Due Date</b>	<b>Frequency of Distribution</b>	<b>Distribution</b>	<b>Purpose</b>
Site-wide Environmental Assessment of SNL/CA: provides bounding impact scenario for site operations for ten years	None	Every 10 years	Unlimited public release	DOE requirement
Biological Assessment for Continued Operation of SNL/CA: Analysis of impacts to protected wildlife and habitat	None	Every 10 years	DOE and Internal	Regulatory requirement
Cultural Resources Management Plan: Identifies the process that will be followed if cultural resources are found	November 30	Every 5 years	DOE/SSO	DOE requirement
Planning and Ecology Program Report: Summary of program elements	February 15	Annual	Site	Supports EMS Program
EMS Program Manual: Concise description of the overall EMS Program	March 10	Annual	Site	Supports EMS Program
Wildlife Survey Report: Documents results of annual wildlife monitoring	March 30	Annual	EP Program	Supports regulatory requirement
SNL/CA Site Environmental Report (final draft): Summary of environmental compliance, program, and monitoring activities	June 1	Annual	Unlimited public release	DOE requirement
Environmental Scorecard: Provides highlights of environmental program actions	30 days after quarter end	Quarterly	Internal release through ES&H website	Informational
SNL/CA Input to Corporate ES&H Report: Provides summary of audit activities, injuries/illnesses, and occurrences	30 days after quarter end	Quarterly	SNL/NM Performance Assurance	Corporate requirement
NEPA Report: Documents NEPA project reviews	15 days after month end	Monthly	DOE /SSO	Informational
<b>Reporting Requirements</b>				
California Natural Diversity Database	As needed	As species are identified	State of California and DOE/SSO	Regulatory requirement and informational
California red-legged frog observations	Within 3 days of observation	As needed	USFWS and DOE/SSO	Regulatory requirement

## 5 Approved Job Descriptions, Qualifications, and Job-Specific Training

Job assignments in Planning and Ecology include Program Lead, Program Technologist, Wildlife Biologist, Wildlife Technologist, and Wildlife Biology Intern. Job descriptions and qualifications for each assignment follow. Appendix B provides a list of personnel supporting each job assignment.

Sandia views training, development, and education as a strategic investment in Sandia's future. The policy of Sandia Corporation is to maintain a high level of technical and administrative competence in support of its mission. In support of this policy, Sandia maintains a set of general

corporate training requirements that cover a wide range of areas such as security (physical, information, computer), business ethics and diversity, general ES&H, and general business processes. Standard corporate requirements are identified for each individual in the online Corporate Education, Development, and Training database at <https://hrprod.sandia.gov/cfdocs/prod/hris/ctd/apps/cedtweb/cedtmain/index.cfm>. The online database tracks completion status for all corporate training requirements and provides electronic reminders when a course is due to all Planning and Ecology personnel. Sandia training coordinators identify corporate training requirements for new hires. Sandia has developed online training courses to meet these requirements.

In addition to corporate training requirements, each program assignment has job-specific training requirements. These training requirements address safety as well as specific job functions. The Environmental Management Department Manager, Program Lead, or Department ES&H Coordinator may identify job-specific training requirements. Most of these requirements are tracked in the online database. Table 4 presents job-specific training requirements for Planning and Ecology.

## **5.1 Planning and Ecology Program Lead**

The Program Lead is responsible for management and oversight of all program activities, interacting with the DOE/SSO on all NEPA, ecological, and cultural resource issues, interacting with state and federal regulatory agencies, and participating on the ES&H Interdisciplinary Team. Management and oversight responsibilities encompass a range of activities including budgeting, monitoring costs, identifying investments needs, task assignment and oversight, contract management, conducting program self assessments, maintaining the program website, reporting, developing operational controls, and participating in special site events and department projects. The Program Lead serves as the NEPA subject matter expert for SNL/CA. The Lead is responsible for monitoring changes in program compliance drivers and for communicating these changes to the site.

At a minimum, the Program Lead is required to hold a Bachelor of Art degree with at least 10 years experience in an environmental field, or a Bachelor of Science degree in an engineering, environmental, or science field with three years of related work experience. Desirable qualifications for this position include proficiency in technical writing, project management skills, and NEPA expertise. Registration as an environmental manager is optional, but encouraged, for the Program Lead position.

## **5.2 Program Technologist**

The Program Technologist supports various aspects of the Planning and Ecology Program. The Program Technologist serves as the back-up NEPA subject matter expert by completing NEPA reviews and attending Interdisciplinary Team meetings during the Program Leads absence. The Program Technologist is responsible for technical editing on reports generated by the Planning and Ecology, provides assistance with technical writing, and prepares two program reports, the Environmental Scorecard and SNL/CA input to the corporate ES&H report. The Program

Technologist is also responsible for assisting in developing announcements, presentations, and display materials for site and department events.

At a minimum, the Program Technologist is required to hold an Associate of Art degree. It is also desirable for the Program Technologist to be proficient in technical writing and have a minimum of three years work experience in an engineering, environmental, or science field.

### **5.3 Wildlife Biologist**

The Wildlife Biologist is responsible for all aspects of wildlife monitoring, conducting wildlife surveys, documenting the results of monitoring and surveys, and providing training to maintenance personnel to meet requirements established in the Biological and Conference Opinion for SNL/CA operations. The Wildlife Biologist serves as the contact for SNL/CA workers to report observations of California red-legged frogs, California tiger salamanders, and other wildlife.

The Wildlife Biologist is required to hold, at a minimum, a Bachelor of Science degree in wildlife biology or ecology. The physical demands of this position include walking off-path in steep terrain, riparian habitat, and grassland areas. Consequently, the Biologist must be physically capable of withstanding the physical demands of the job. Regulatory standards for conducting surveys training require that a qualified field biologist (as determined by the USFWS) hold this position. Desirable qualifications for this position include familiarity with California fauna and experience with Federal and state regulations related to wildlife.

### **5.4 Wildlife Technologist**

The Wildlife Technologist assists the Wildlife Biologist with wildlife monitoring and surveys. This position supports the two-person rule for access to the outer perimeter area.

The physical demands of this position include walking off-path in steep terrain, riparian habitat, and grassland areas. Consequently, the Wildlife Technologist must be physically capable of withstanding the physical demands of the job. Desirable qualifications for this position include three years work experience in an engineering, environmental, or science field, and an interest in wildlife or ecology.

### **5.5 Wildlife Biology Intern**

The Wildlife Biology Intern assists with wildlife monitoring and surveys under the direction of the Wildlife Biologist. The intern position also assists the Program Lead with distributing wildlife posters and other informational materials to the site. This position supports the two-person rule for access to the outer perimeter area.

Student interns at SNL/CA must be currently enrolled students with a grade point average of 3.0 or better. This intern position also requires a college student with coursework in biology, ecology, or a related field. The physical demands of this position include walking off-path in steep terrain, riparian habitat, and grassland areas. Consequently, the Wildlife Biology Intern

must be physically capable of withstanding the physical demands of the job. Desirable qualifications for this position include an interest in wildlife or ecology.

**Table 4 Environmental Planning and Ecology Program Training Matrix**

Training Requirement	Training Method	Program Lead	Program Technologist	Wildlife Biologist	Wildlife Technologist	Wildlife Biology Intern
ENV120 NEPA Awareness	Online	●	●			
FRP106 Fire Extinguisher Training Hands-On	SNL classroom	●		●	●	●
SBS700 Sandia Delegated Reps: What SDRs Need to Know	SNL classroom	●				
WRT101 Effective Writing Skills	SNL classroom	●	●			
WRT100 Writing Nuts'N Bolts: Mastering the Basics	SNL classroom	●	●			
FPP105CA Fall Protection and Prevention	SNL classroom	●		●	●	
CNF105 Confined Space	SNL classroom			●	●	
CNF107 Confined Space	SNL classroom			●	●	
Animal Track Identification	Outside expert	●		●		
Animal Track Awareness (provided by Wildlife Biologist)	On the job training				●	●
ESH300 Self Assessment	Online	●	●	●	●	
ESH100 ES&H Awareness	Online	●	●	●	●	●

## 6 Performance Measures

EMS objectives that are applicable to Planning and Ecology include full compliance with environmental requirements and enhancement of the natural habitat. To assess performance in meeting these objectives, Planning and Ecology measures NEPA compliance and monitors species richness. Measures and the rationale for selecting them follow.

### 6.1 NEPA Compliance

The intent of the NEPA process is to foster decisions based on an understanding of the environmental consequences of an action. To foster good decisions, the DOE NEPA policy includes application of the NEPA review process during project planning so that environmental consequences are identified early, and actions can be implemented to protect, restore, and enhance the environment before a project starts. Planning and Ecology measures SNL/CA's performance in applying the NEPA review process during project planning by tracking the percentage of NEPA reviews completed prior to scheduled project start dates.<sup>1</sup> Figure 1 shows

<sup>1</sup> Previously, project lead-times were used as a measure. However, data reporting through the NEPA Module which began in January 2005, is now inconsistent and does not provide an accurate measure of NEPA compliance.



SNL/CA's NEPA on-time completion rate since 1997. As shown, completion rates have been routinely above 90 percent except in 2005. The decline in the on-time completion rate in 2005 is due to improvements in the project authorization process for the nuclear weapons strategic management unit (NWSMU) that was not coordinated with Sandia's NEPA groups (both in New Mexico and California). Starting with fiscal year 2005, all NWSMU projects are required to undergo NEPA review through the online NEPA Module as part of annual project authorization. Planning and Ecology was made aware of this change in August 2004, only two months before the start of the fiscal year. Two months was insufficient time to complete all NEPA reviews before the start of the fiscal year in October. As most of these projects were continuing from previous years, the DOE/SSO agreed to waive the requirement to complete the NEPA review before start of the fiscal year as long as the review was completed by January 1, 2005. All NEPA reviews for fiscal year 2005 NWSMU projects were completed by November 30, 2004.

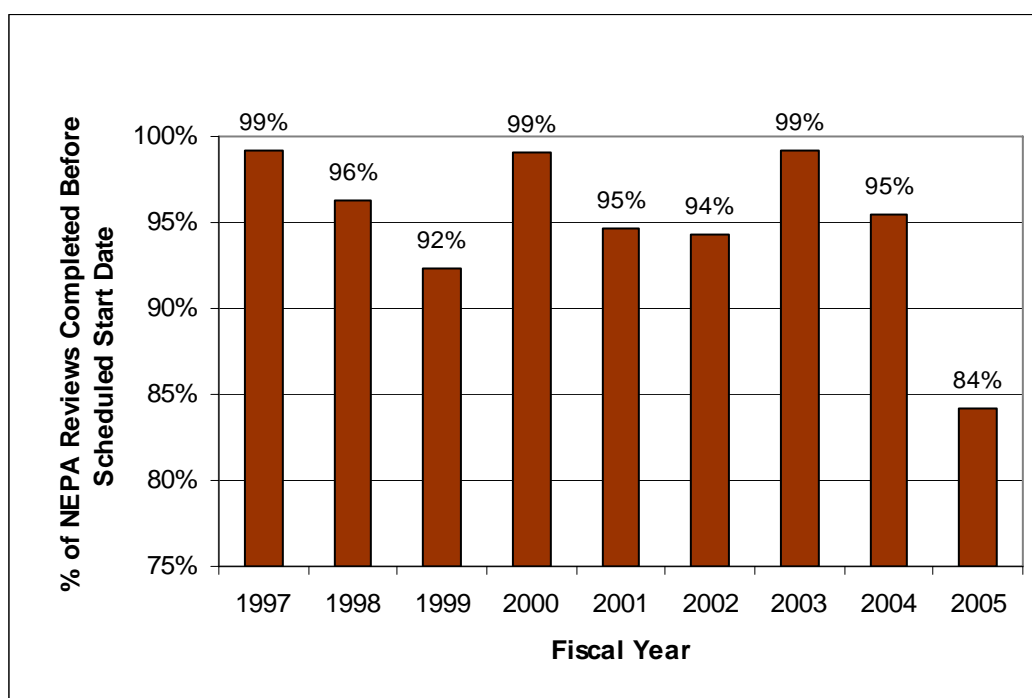


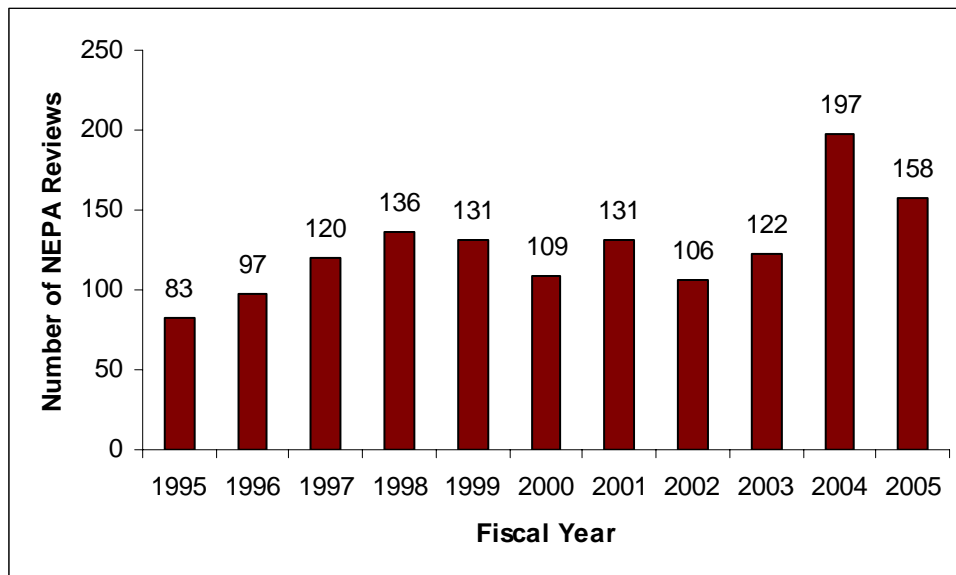
Figure 1 On-time Completion Rate for NEPA Reviews

### 6.1.1 NEPA Data Gaps

NEPA reviews are required for all new projects, and for changes to projects that create new or different ES&H effects. Planning and Ecology uses various mechanisms to identify new and changing projects at SNL/CA. These include the ES&H Interdisciplinary Team, NEPA triggers inserted into project funding processes, annual review of field work proposals<sup>2</sup>, the primary hazard screening tool available with Sandia's Integrated Safety Management System, and self-assessment data. While these mechanisms identify most projects that require NEPA review, they do not capture all projects. SNL/CA does not maintain a complete count or list of projects;

<sup>2</sup> Field work proposals are funding proposals for DOE's energy and environment sector. At SNL/CA, these are used to fund many projects at the Combustion Research Facility. The field work proposal is a DOE form and currently does not include a NEPA trigger.

consequently, Planning and Ecology is unable to calculate the NEPA compliance rate for the site. Although the compliance rate cannot be determined, Planning and Ecology continues to track the number of NEPA reviews completed each fiscal year. Figure 2 presents the number of NEPA reviews completed since 1995.



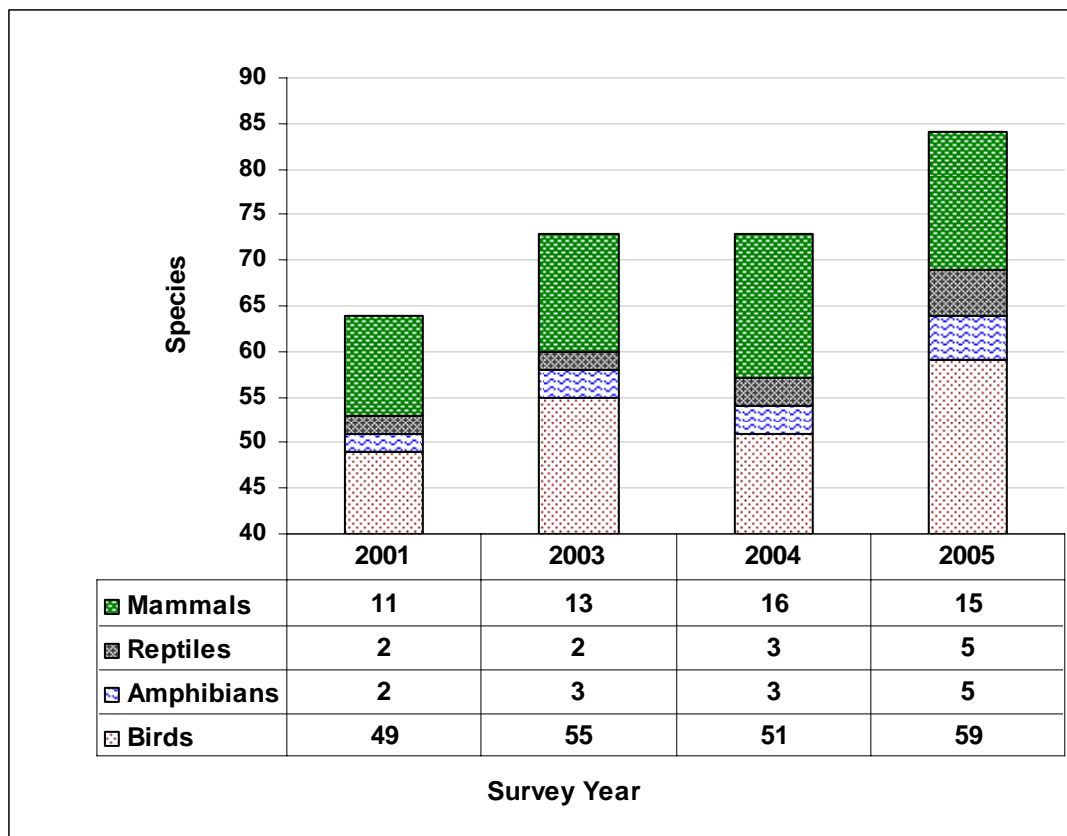
**Figure 2 NEPA Reviews Completed**

### **6.1.2 Advances in NEPA Compliance**

As noted in Section 6.1, the NWSMU implemented improvements in the project authorization process that included a NEPA compliance mechanism. Project owners are now prompted to complete a NEPA review and to provide a NEPA identification number on project authorization forms. As a result of this improvement, 100 percent of the NWSMU projects authorized for fiscal year 2006 underwent NEPA review through the online NEPA Module. Unless significant changes are proposed for these projects in future years, additional NEPA review will not be required.

## **6.2 Species Richness**

SNL/CA has an objective to enhance the natural habitat thereby increasing the health of the ecosystem. Planning and Ecology collects data on species richness as a qualitative measure of ecological health. Figure 3 presents species richness data by type of animal since 2001. While the data shows that the total number of species observed on site has increased over time, it cannot be used as a complete indicator of ecological health. However, at a minimum, the data suggests that the health of the ecosystem is not declining.



**Figure 3 Species Richness at SNL/CA**

### **6.2.1 Additional Measures of Ecological Health**

During 2006, Planning and Ecology will complete a literature search to identify quantitative measures of ecological health that may be suitable.

## **7 Quality Assurance**

### **7.1 Program Risk Assessment**

In January 2006, Planning and Ecology completed an assessment of risks associated with not meeting program requirements. The risk assessment identified three potential risks associated with Planning and Ecology:

1. Failure to receive approval for recharge basin restoration
2. Deviation from or exceedance of boundaries established in the SWEA
3. Taking of a protected species

A risk category of low was calculated for Risk 1 and Risk 2. A risk category of medium was calculated for Risk 3 because of the potential for accidental take of a bird or nest protected under the Migratory Bird Treaty Act. The complete risk assessment is included in Appendix C.

In response to the medium risk category for Risk 3, Planning and Ecology worked with Facility Maintenance organizations to schedule trimming of trees and large shrubs during the winter to avoid disturbing nesting birds during spring and summer months. Winter trimming began in October 2005. For occasional trimming needed during spring and summer, Maintenance arranges for a pre-activity survey for nesting birds with the Wildlife Biologist. The Wildlife Biologist determines if a nest is active and, therefore, requiring a project delay until the young have fledged. During 2005, two projects were delayed to protect nesting birds. The 2005 Wildlife Survey Report presents the complete results of pre-activity surveys conducted during the year.

## **7.2 Maintaining Program Quality**

Planning and Ecology applies the following program-specific elements to assure quality is maintained in data collection, analyses, and reporting.

- Online tools ensure that a standard process is followed for collection and evaluation of project information for all NEPA reviews.
- Internal reports and documents are subjected to internal review and technical editing before finalizing.
- Published reports are reviewed by DOE/SSO, applicable SNL/CA staff, and technical editors before finalizing.
- Standard industry and regulatory protocols are followed for conducting wildlife surveys.
- Wildlife survey forms are completed by the Wildlife Biologist in the field.

## **8 Program Assessments**

Prior to 2005, Planning and Ecology did not maintain a routine schedule for program assessment. The last formal program assessment was completed in 2000. Informal assessments of technical work documents have been completed annually for the last seven years, as needed. Beginning in 2005 as part of EMS implementation, Planning and Ecology will complete two routine assessments annually, a program self assessment, and a line implementation assessment.

### **8.1 Program Self Assessment**

In 2005, Planning and Ecology completed a program self assessment that reviewed all technical work documents, processes, and web pages. The results of this assessment are documented on a Program Self Assessment Document Review Form included in Appendix D.

### **8.2 Line Performance Assessment**

Planning and Ecology completed a line performance assessment between October 1 and December 15, 2005. This assessment focused on line implementation of NEPA requirements for new Laboratory Directed Research and Development funded projects. Twenty-four of 32 new LDRD projects (75%) for FY 2006 were found to be in compliance with NEPA requirements. Email notifications to complete NEPA reviews for the eight remaining projects were distributed to project managers and principal investigators. All eight responded to the notification and

initiated corrective action. No NEPA findings were issued as a result of this assessment. A copy of the line performance assessment report is included in Appendix E.

During 2006, Planning and Ecology will develop a set of action items to address the results of the 2005 assessment. Action items may include enhancing communications about NEPA requirements, enhancing NEPA awareness through the LDRD funding process, or revisions to the online software tools used for NEPA reviews.

### **8.3 Environmental Program Representative Assessment**

For 2005, Planning and Ecology did not request assessment support from the Environmental Program Representative.

### **8.4 Corporate / Line Self Assessment**

During 2005, the corporate / line self assessment process did not assess any elements of the Planning and Ecology Program.

## **9 Accomplishments**

During 2005, Planning and Ecology accomplished the following activities.

- In January 2005, Planning and Ecology began using a web-based application for NEPA reviews. This application, or NEPA Module, is a component of the ISMS tool set. The online module guides the customer (or project coordinator) through a series of questions to provide information needed to complete a NEPA review. After the customer completes the online form, the system prompts him or her to submit the information for review, and automatically notifies the SNL/CA NEPA SME that a review is pending. The application is also accessible by the DOE/SSO NEPA Compliance Officer, allowing DOE to review projects and make NEPA determinations in a timely manner. Electronic records of NEPA reviews are also maintained in the module.
- On May 10, 2005, DOE/SSO approved the SNL/CA Site Environmental Report for 2004. Planning and Ecology completed the annual report 30 days ahead of DOE's already aggressive schedule that identified completion of the final draft by June 2, 2005.
- During August and September, 2005, Planning and Ecology completed NEPA reviews for all projects funded through the NWSMU for fiscal year 2006. This represents the first time that the NWSMU funding group experienced a NEPA compliance rate of 100% at SNL/CA. See Section 6.1 for additional information.
- In December 2005, Planning and Ecology coordinated with the Procurement Department to establish a contract with NSF International Strategic Registrations to obtain ISO 14001 registration of the SNL/CA EMS.
- During 2005, the EMS Core Team received a gold President's Quality Award for development and implementation of the SNL/CA EMS.

## 10 Trends

Over the last two years, several changes occurred that affect NEPA review activities at SNL/CA. Issuance of the SWEA in 2003 (see Section 1.1) provided the site with a broad envelope for operations over a ten-year period. With the SWEA, Planning and Ecology has the ability to review more than 95 percent of site projects internally, without the need for a DOE NEPA determination. Internal reviews are completed quickly (usually within a few hours). Customers experience fewer project delays as a result of the NEPA process, and potential ES&H issues are surfaced early for further evaluation through the ES&H Interdisciplinary Team process. These trends are likely to continue as long as the SWEA impact analyses remains valid.

A second change that affected NEPA review activities is the on-line NEPA application discussed in Section 9.0. The NEPA Module clearly defines the type of information needed from a project proponent eliminating the need for multiple iterations of information collection activities. Over the long-term as the SNL/CA workforce becomes familiar with using the module, Planning and Ecology expects the NEPA review process to gain efficiency and quality. Since the module was launched at SNL/CA, the NEPA SME has experienced a decrease in time spent to complete project reviews. This trend is likely to continue.

Planning and Ecology is not aware of any upcoming state or federal regulatory changes affecting wildlife or plant species present at SNL/CA.

## 11 Goals and Objectives

Table 5 presents SNL/CA EMS objectives, targets, and actions that support Planning and Ecology elements. Selected targets and actions are intended to increase the quality of site habitat for native species, decrease pest species found onsite, and promote long-term sustainability of resources through building design.

**Table 5 EMS Objectives, Targets, and Actions Supporting EP Program Elements**

Objective	Target	2005 Action Items Completed	2006 Action Items
Provide exceptional environmental management for the SNL/CA site	Receive zero findings from DOE or external regulatory audits	Incorporated program assessment corrective actions into program	Incorporate program assessment corrective actions into program
	Receive no Notices of Violation from any external regulatory audit	Incorporated program assessment corrective actions into program	Incorporate program assessment corrective actions into program
Enhance the natural habitat		Summarized mitigation requirements identified in the biological opinion and provide to Facilities Planning and Engineering for incorporation into facilities planning documents	
	Incorporate the requirements of the USFWS biological opinion into site operations		
	Complete the most critical actions identified in the Management Plan for Arroyo	Resubmitted JARPA to the US Army Corp of Engineers	Complete five tasks: 1, 3, 10, 12, and 13

Objective	Target	2005 Action Items Completed	2006 Action Items
	Seco by September 30, 2014	by January 31, 2005	Develop success criteria for Arroyo Seco restoration Submit ACOE application for 10-year permit to complete remaining tasks
	Establish a demonstration garden using native plants and integrated pest management techniques by October 31, 2008	None	None
	Revise and update the site Landscape Master Plan to better integrate industrial landscaping with native plants (December 31, 2008)	None	Discuss schedule for update of the Landscape Master Plan with Facilities Planning and Engineering
	By the end of FY 09, remove 25% of the milk thistles in the outer perimeter area and reseed areas with native grasses	Prepared an estimate of acres containing milk thistle in the outer perimeter area	Removed as a target – current practice of grassland mowing is an effective method of discouraging thistle growth
	Return all disturbed areas to pre-test conditions within 90 days of completion of testing / experimental activities	Prepared a standard notification for outdoor testing activities that can be distributed as part of the IDT evaluation	No further actions
	Anti-pigeon roosting concepts will be used for all future new construction projects	None	None
	100% of all future new building and renovation project designs will meet at least LEED Bronze level design/construction point value	None	Discuss revision of this objective with Facilities Planning and Engineering to upgrade to LEED Silver level
	100% of offroad vehicle travel will be confined to mowed pathways by end of FY 07	Operating procedure implemented by Fire Safety for offroad vehicle use that addresses this target	None

Planning and Ecology is also subject to one external objective established by the USFWS in the site biological opinion. The objective is to minimize the potential for harassment, harm, or mortality of California red-legged frogs and California tiger salamanders. The biological opinion identifies the following ten non-discretionary terms and conditions to meet this objective.

1. SNL/CA operations will be implemented as described in the biological opinion and associated documents, including all conservation measures.
2. New buildings and infrastructure shall be confined to the minimum area necessary to achieve their purpose.
3. Where construction areas abut the wildlife preserve, SNL/CA shall install fencing to prevent workers from entering the preserve.
4. Landscaping in new construction areas shall be designed to minimize water consumption to reduce irrigation runoff to Arroyo Seco.

5. A USFWS-approved SNL/CA employee or contractor will conduct a training session for all construction, landscape, and maintenance personnel prior to any construction, landscaping, or maintenance activities that may affect the red-legged frog or tiger salamander. Training will include a description of the red-legged frog and tiger salamander, their habitats, and the protective measures to be implemented for these species.
6. Plastic mono-filament erosion control matting shall not be used where red-legged frogs and tiger salamanders may become entangled or trapped in it, particularly in Arroyo Seco.
7. Any individuals handling red-legged frogs or tiger salamanders shall hold a valid 10(a)(1)(A) Scientific Collection Permit from the Service. All capturing and relocation protocols utilized shall be approved by the Service and California Department of Fish and Game prior to implementation.
8. The SNL/CA shall appoint a representative who will be the contact source for any employee or contractor who might inadvertently kill or injure a red-legged frog or tiger salamander or who finds a dead, injured or entrapped individual. The representative shall be identified during the employee education program. The representative's name and telephone number shall be provided to the Service prior to the initiation of ground disturbance activities.
9. Within five days prior to de-watering and/or other construction related activity, all suitable red-legged frog and tiger salamander aquatic habitat shall be surveyed. All size classes of red-legged frogs and tiger salamanders will be moved out of the work area to a suitable pool away from the construction site. No more than 14 days prior to construction, SNL/CA shall notify the Service of the location and condition of this pool habitat. No frogs or salamanders shall be moved before the Service has approved the relocation site.
10. SNL/CA shall initiate a bullfrog control program. All potential bullfrog breeding habitat shall be surveyed annually for bullfrog egg masses, larvae, juveniles, and adults. All age classes of bullfrogs shall be removed and killed.



# **Appendix A**

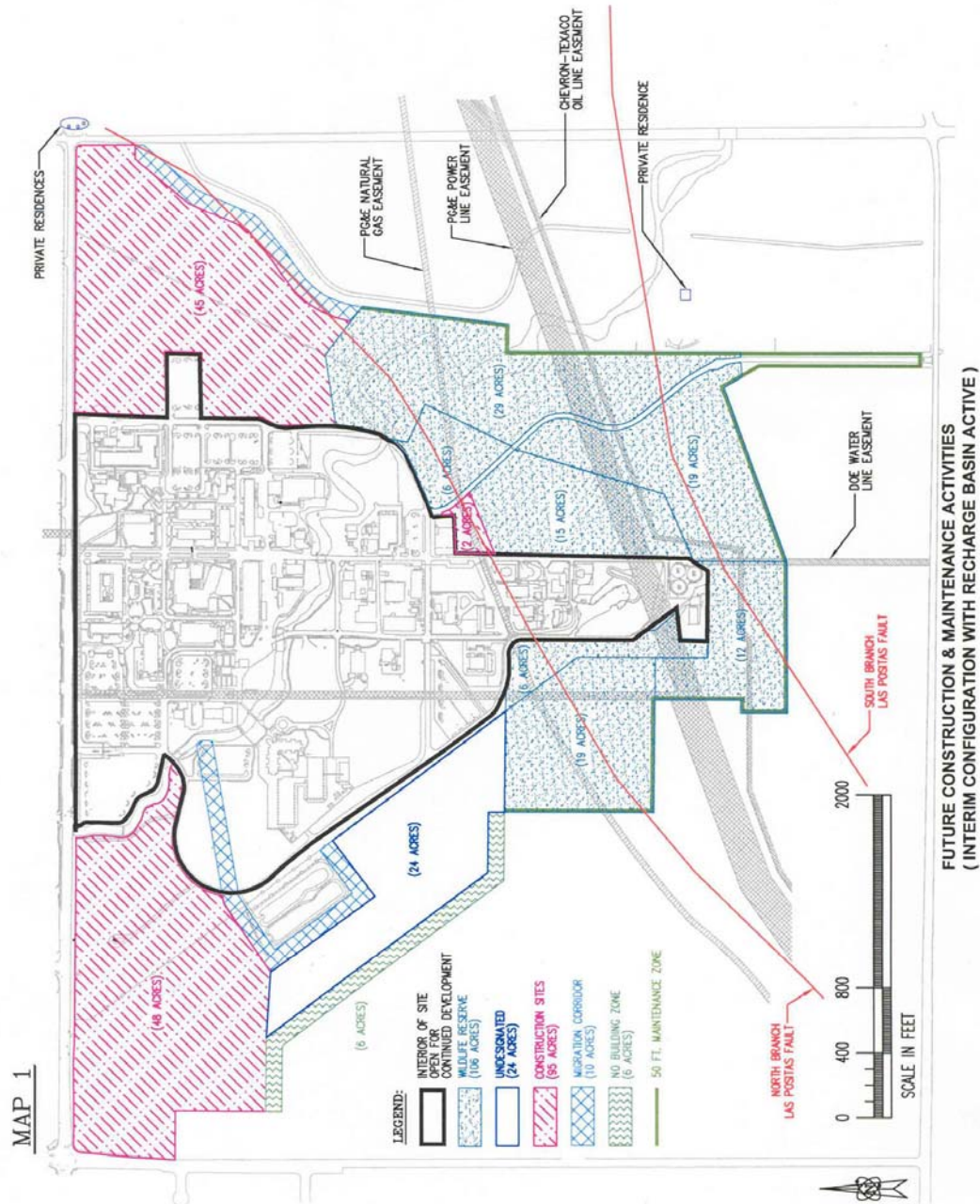
## **Requirements from Biological and Conference Opinion**

**Summary of Wildlife and Habitat Mitigation Measures  
Biological and Conference Opinion for Sandia National Laboratories, California  
December 8, 2004**

General mitigation measures

- This opinion applies to site operations as designated on the attached map.
- The 106-acre wildlife reserve is not available for public access or recreational use.
- Only individuals with a valid Scientific Collection Permit can handle (capture and release) California red-legged frogs or California tiger salamanders.
- Provide training to all construction, landscape, and maintenance personnel conducting activities that may affect red-legged frogs or tiger salamanders. Training to include species description, habitat description, and protective measures for the species. The trainer must be approved by the Fish and Wildlife Service (i.e. qualified wildlife biologist).
- Capture and relocation protocols shall be approved by the Fish and Wildlife Service and the California Department of Fish and Game prior to implementation.
- Prior to relocating individual red-legged frogs or tiger salamanders, the Fish and Wildlife Service must approve the relocation site.
- Report to the Fish and Wildlife Service immediately when:
  - any listed species is found onsite
  - accidental take or injury of a red-legged frog or tiger salamander occurs
  - a dead red-legged frog or tiger salamander is found onsite
  -
- SNL/CA shall appoint a representative to serve as a contact for site personnel on all red-legged frog and tiger salamander related issues.
- Report all new sightings of red-legged frogs and tiger salamanders to both the Fish and Wildlife Service and California Natural Diversity Database.
- SNL/CA shall initiate a bullfrog control program, including annual surveys for potential breeding habitat, egg masses, larvae, juveniles, and adults, and removal of all age classes.
- Notify the Fish and Wildlife Service of conservation measures that have been implemented to benefit the red-legged frog and tiger salamander.
- Monitor survival and growth of riparian vegetation planted along Arroyo Seco.
- Prepare a wildlife and habitat management plan.
- Construction-related mitigation measures
  -
- Stockpiling of soil can occur in the 95-acre construction zone.

- Annual and pre-activity surveys for California red-legged frogs and California tiger salamanders are required prior to construction activities.
- Planting in and along Arroyo Seco will use only native riparian vegetation. Plants will be a mixture of riparian species commonly found at SNL/CA such as arroyo willow, Gooding's black willow, red willow, Fremont cottonwood, western sycamore, valley oak, mugwort, rush, and native grasses.
- Construction activities within and along Arroyo Seco will be conducted from June 1 through September 30.
- Construction activities will occur during daylight hours.
- New buildings and infrastructure shall be confined to the minimum area necessary to achieve their purpose.
- Where construction areas abut the wildlife reserve, fencing shall be installed to prevent workers from entering the reserve.
- Landscaping in new construction areas shall be designed to minimize water consumption and reduce irrigation runoff to Arroyo Seco.
- Plastic mono-filament erosion control matting shall not be used where red-legged frogs and tiger salamanders may become entangled or trapped, particularly in Arroyo Seco.
- Maintenance-related mitigation measures
- Composting of landscape debris can occur in the 95-acre construction zone.
- Ground squirrel control will not occur in the wildlife reserve.
- Ground squirrel control on the site interior will consist only of trapping and removing.
- Feral cats will be trapped and removed, as needed.
- Maintenance activities within and along Arroyo Seco will be conducted from June 1 through September 30.
- Wetland or riparian vegetation will not be mowed.
- Individual animals will not be sprayed with Round-up or other herbicides.
- Areas within the arroyo channel will not be sprayed with Round-up or other herbicides.
- Ground squirrel burrows will be surveyed for California red-legged frogs and California tiger salamanders prior to backfilling. Surveys will be done by site wildlife biologist using an infrared optical probe.



## Appendix B

### Personnel Assignments

**Table 6 EP Program Assignments**

<b>Job Assignment</b>	<b>Personnel</b>	<b>Back-Up</b>
Program Lead	Barbara Larsen	Leslee Gardizi
Program Technologist	Sandy Leo	None
Wildlife Biologist	Joanne Mount-Sartor	None
Wildlife Technologist	John Chavarria	None
Wildlife Biology Intern	Rebecca Schermesser	None

## Appendix C

# Environmental Planning and Ecology Program Risk Assessment

The risk assessment process for the Environmental Planning and Ecology Program follows the general steps of

1. Identify the risk
2. Identify the probability of the event occurring
3. Identify the consequence if the event occurs.

The following tables will be used to assign a numeric value to the probabilities and consequence categories.

Likelihood/Probability Of Occurrence Level	Likelihood/Probability Criteria
<b>Very High</b>	• Everything points to this occurring
<b>High</b>	• <i>High chance</i> • <i>Lack of relevant processes or experience contribute to a high chance of occurrence</i>
<b>Medium</b>	• <i>Even chance</i>
<b>Low</b>	• <i>Not much of a chance</i>
<b>Negligible</b>	• Negligible chance this will occur

CONSEQUENCE/ SEVERITY LEVEL	CONSEQUENCE/SEVERITY CRITERIA
<b>High</b>	<p>damage (e.g., ozone depletion, rad soil contamination) • Serious environmental impact resulting in recovery actions lasting 5 years or more (e.g., TCE in aquifer) • Results in General Emergency (affects both onsite and offsite) • Unsatisfactory rating by external regulators or cease and desist order • Affects lab leadership, including prime contract • Actions, inactions or events that pose the most serious threats to national security interests and/or critical DOE assets, create serious security situations, or could result in deaths in the workforce or general public (i.e., IMI-1) † • Actions, inactions or events that pose threats to national security interests and/or critical DOE assets or that potentially create dangerous situations (i.e., IMI-2) † • Unallowable costs or fines &gt;\$1M • Adverse public opinion – high interest/widespread open public attention or debate (lasting weeks to months) • Customer dissatisfaction results in permanent loss of lab customer • Catastrophic failure to meet internal requirements • Loss of major program within the division (&gt;\$10M)</p>

<b>Medium</b>	<ul style="list-style-type: none"> <li>• Has the potential for adverse impact on Sandia's programmatic performance or the achievement of corporate strategic or operational objectives</li> <li>• Significant injury/illness -fully recoverable with a long recovery time</li> <li>• Significant environmental impact resulting in recovery actions lasting up to 5 years (e.g., major oil spill)</li> <li>• Results in Site/Area Emergency (affects multiple onsite facilities)</li> <li>• One of regulator "hot buttons" (e.g., NNSA, NMED)</li> <li>• Results in increased oversight of limited number of functions</li> <li>• Actions, inactions, or events that pose threats to DOE security interests or that potentially degrade the overall effectiveness of DOE's safeguards and security protection program (i.e., IMI-3) †</li> <li>• Unallowable costs or fines &gt;\$500K and &lt;\$1M</li> <li>• Adverse public opinion – moderate interest, limited PR problems of short duration (days)</li> <li>• Customer dissatisfaction results in partial loss of program</li> <li>• Significant failure to meet internal requirements</li> <li>• Loss of program within division (&gt;\$1M)</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>• Minimal injury/illness – Fully recoverable with a short recovery time</li> <li>• Minimal environmental impact that can be improved within days</li> <li>• Results in increased short-term oversight</li> <li>• Results in an Operational Emergency (affects a single onsite facility)</li> <li>• Actions, inactions, or events that could pose threats to DOE by adversely impacting the ability of organizations to protect DOE safeguards and security interests (i.e., IMI-4) †</li> <li>• Unallowable costs or fines &lt;\$500K</li> <li>• Adverse public opinion with short-term local negative publicity or embarrassment</li> </ul>
<b>Negligible</b>	<ul style="list-style-type: none"> <li>• Little or no attention, might be discussed as lesson learned</li> </ul>

The risk level will be graded according to the following matrix. Adapted from DOE O 471.4.

<b>RISK GRADING LEVELS</b>					
		<b>Consequence/Severity</b>			
		<i>Negligible</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>
<b>Likelihood of Occurrence</b>	<i>Very High</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>High</i>
	<i>High</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>High</i>
	<i>Medium</i>	<i>Low</i>	<i>Medium</i>	<i>Medium</i>	<i>High</i>
	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Medium</i>
	<i>Negligible</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>

## **Risks Associated with the Environmental Planning and Ecology Program**

- 1. Failure to Receive Approval for Recharge Basin Restoration Project**
- 2. Deviation or Exceedance of Boundaries Established in the Site-Wide Environmental Assessment**
- 3. Taking of a Protected Species**

### **1. Failure to Receive Approval for Recharge Basin Restoration Project**

#### **a. Identification of Risk**

The recharge basin located in the western portion of the SNL/CA outer perimeter area was installed as part of Lawrence Livermore National Laboratory's Environmental Restoration Project. Clean water was discharged to the ponds to help control groundwater flow to a treatment system. Use of the ponds has been discontinued and the area has been returned to SNL/CA for management.

SNL/CA intends to fill in the ponds, and restore the area to its original condition.

If SNL/CA fails to follow the Endangered Species Act, Section 7 Consultation process, the site would be open to fines from the US Fish and Wildlife Service.

#### **b. Probability of Occurrence**

It is not likely that the USFWS would deny permission for this project. However, if the USFWS considers the project to be of high impact, mitigation would be required to offset the perceived impact. For this reason, this risk is assigned a probability of Low.

#### **c. Consequence of Occurrence**

If mitigation is required by the USFWS, the cost to Sandia, both in dollar amount and personnel time could be significant. However, when compared to the overall budget of SNL/CA, and the staffing levels of major programs at the site, the consequence is considered to be Medium.

Delays in receiving a biological opinion from the USFWS could also have a programmatic impact to the site as the area would not be available for construction of a new facility.

#### **d. Overall Risk Category**

In accordance with the chart above, for a risk with a probability of Low with a Medium consequence, the risk category is **Low**.



## **2. Deviation or Exceedance of Boundaries Established in the Site-Wide Environmental Assessment**

### **a. Identification of Risk**

SNL/CA's Site-Wide Environmental Assessment contains several boundaries or upper limits to site operations. These include a maximum biosafety level 2 for activities in Building 968, low-hazard activities (as defined by DOE) in all site facilities, quantities of waste generated for the site as a whole, explosive storage capacity, etc. SNL/CA is required to remain within these boundaries.

### **b. Probability of Occurrence**

Several processes are in place at SNL/CA to prevent such an exceedance. All research and facilities projects are required by site policy to be presented to the Interdisciplinary Team. Such a presentation should make clear to the Environmental Planning and Ecology Program Lead (an IDT member) any chance for a boundary exceedance.

Most project funding processes trigger a NEPA review during the funding process. This is not the case for projects within DOE's Energy and Environment Sector.

The above processes make the probability of exceeding a SWEA boundary Low.

### **c. Consequence of Occurrence**

If a SWEA boundary were exceeded, the consequences would include: 1) the issuance of an Occurrence Report, 2) the possible requirement of a separate Environmental Assessment for the activity in question, and 3) possible program delay while the above were being performed.

The cost of an OR is minimal, mainly impact in personnel time. Estimated cost for an EA is \$50,000. Program delays could last a few months. For these reasons, the consequence is assigned a category of Low.

### **d. Overall Risk Category**

In accordance with the chart above, for a risk with a probability of Low and a consequence category of Low, the risk category is **Low**.

## **3. Taking of a protected Species**

### **a. Identification of Risk**

SNL/CA has incidental take permits for the red-legged frog and the California tiger salamander. The risk is the taking of a species for which we do not have an incidental take permit (we have incidental take permits for the tiger salamander and red-legged frog). We do not have take permits for any birds covered under the Migratory Bird Treaty Act.

**b. Probability of Occurrence**

Since the majority of the birds found on-site are protected by the Migratory Bird Treaty Act, it is considered Very High that at some time a bird or nest will be accidentally taken.

**c. Consequence of Occurrence**

As discussed above, the fines for the accidental taking of a bird or nest are normally in the \$10,000 range. Therefore, the consequence is assigned a category of Low.

**d. Overall Risk Category**

In accordance with the chart above for a risk with a probability of Very High and a consequence of Low, the risk category is **Medium**.

## Appendix D

# Program Self Assessment Document Review Form

Document Type	Document Title	Review Complete	Changes Made
Operating Procedure	NEPA Reviews of Proposed Projects at SNL/CA (OP471343)	<input checked="" type="checkbox"/> 4/26/05	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Safely Conducting Wildlife Surveys in the Outer Perimeter Area (OP471793)	<input checked="" type="checkbox"/> 4/7/05	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
PHS	SNL3A00248-002 Wildlife Surveys at SNL/CA (due 9/30/05)	<input checked="" type="checkbox"/> 9/05	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Other Program Documents	Program Description (1st issue)	<input checked="" type="checkbox"/> 6/05	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Cultural Resources Management Plan (in prep)	<input checked="" type="checkbox"/> new 11/05	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Web Pages	Env Planning and Ecology Web Page	<input checked="" type="checkbox"/> 10/1/05	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Wildlife Web Page	<input checked="" type="checkbox"/> 10/19/05	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Self-assessment Standards	NEPA	<input checked="" type="checkbox"/> 6/9/05	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	Wildlife	<input checked="" type="checkbox"/> 6/9/05	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**Organization:** 8516

**Program:** Environmental Planning and Ecology

**Date:** Calendar Year 2005

**Signature:** Barbara Larsen (signature on file)  
**Program Lead**

# Appendix E

## Line Performance Assessment



### Environment, Safety, and Health Assessment Report

*Environmental Planning and Ecology Program  
Line Implementation of NEPA Requirements for FY2006 LDRD Projects*

*December 7, 2005*

**Submitted by:**

*Barbara Larsen*

(Barbara Larsen), Lead Assessor  
(Environmental Planning and Ecology Lead)

*12/7/05*  
Date

**Approved by:**

*Gary Shamber*

(Gary Shamber), Manager  
Environmental Management Department

*12/8/05*  
Date

## **Environment, Safety, and Health Assessment Report**

*Environmental Planning and Ecology Program  
Line Implementation of NEPA Requirements for FY2006 LDRD Projects*

*December 7, 2005*

**Submitted by:**

\_\_\_\_\_  
(Barbara Larsen), Lead Assessor  
(Environmental Planning and Ecology Lead)

\_\_\_\_\_  
Date

**Approved by:**

\_\_\_\_\_  
(Gary Shamber), Manager  
Environmental Management Department

\_\_\_\_\_  
Date

## Distribution

- *Assessed Organization(s) manager(s):*
  - 8764, *Jean Lee*
  - 8762, *Tim Shepodd*
  - 8331, *Paul Dressendorfer*
  - 8321, *Malin Young*
  - 8961, *Mitchel Sukalski*
  - 8232, *Jim Lund*
  - 8772, *John Goldsmith*
  - 8368, *Wen Hsu*
  - 8324, *Yolanda Fintschenko*
  - 8112, *Larry Brandt*
  - 8761, *Doug Medlin*
  - 8754, *Neville Moody*
  - 8222, *Ed Talbot*
  - 8333, *Laura Frink*
  - 8152, *Howard Hirano*
  - 8763, *Er-Ping Chen*
  - 8774, *Davina Kwon*
- *Assessed Organization(s) Center Director(s):*
  - *Rick Stulen, Director 8100*
  - *Doug Henson, Director 8200*
  - *Terry Michalske, Director 8300*
  - *Jill Hruby, Director 8700*
  - *Len Napolitano, Director 8900*
- *Ed Cull, Level II Manager 8510*
- *Pat Smith, Director 8500*
- *ES&H Records Center*

## Summary of Results

Twenty-four of 32 new LDRD projects (75%) for FY 2006 were found to be in compliance with NEPA requirements. Email notifications to complete NEPA reviews for the eight remaining projects were distributed to project managers and principal investigators. All eight responded to the notification and initiated corrective action. No NEPA findings were issued as a result of this self-assessment.

## Assessment Result Details

### 1. Scope

- a. The 2005 self-assessment of the Environmental Planning and Ecology Program focused on line implementation of NEPA requirements for new Laboratory Directed Research and Development funded projects.
- b. Organizations from the following Centers were included in the assessment: 8100, 8200, 8300, 8700, and 8900.

- c. See Appendix 4 for a complete list of projects and organizations assessed.
- d. An assessment of specific facilities was not completed under this self-assessment.

## **2. Methodology**

Two methods were used for this assessment, a document review and personnel interviews.

**Document Review** – A list of new LDRDs for Division 8000 funded in fiscal year 2006 was obtained from the corporate LDRD database that is available online. The online NEPA database was searched to crosscheck projects for completed NEPA reviews.

**Personnel Interviews** – Project owners for new projects with completed NEPA reviews were requested to provide input via email or telephone interview.

## **3. Items in Compliance**

A database review was completed on October 20, 2005. Twenty-four of 32 (75%) new FY 06 LDRD projects had completed the NEPA review and were in compliance with the NEPA requirement. Of the eight projects without NEPA reviews, three are managed by 8330 organizations in New Mexico. The remaining five projects are managed by organizations in CA. Email notifications were distributed on October 20, 2005 to the eight project owners whose projects had not yet undergone a NEPA review.

## **4. Strengths**

- a. No noteworthy practices were identified during the assessment.

## **5. Observations/Recommendations**

### **Observations resulting from database review -**

Org 8331, Org 8333: For the following three projects managed from NM, the NM ES&H Coordinator indicated that existing NEPA determinations would cover these projects and that a comment would be added to an existing NEPA checklist stating coverage for the LDRD projects.

- Project # 93549, Engineering Intracellular Active Transport Systems as In Vivi Biomolecular Tools
- Project # 93499, Cell Modeling with Heterogenous, Dynamic Cell Membranes
- Project # 93500, Membrane analysis of the Plague Bacterium, Yersinia Pestis, During Flea to Mammalian Host Adaption

Recommend follow-up with ES&H Coordinator and SNL/NM SME to ensure that comments are documented through the NEPA module.

Org 8961, Org 8761: Two of the five projects managed from CA completed the NEPA review immediately after notification. No further action is recommended for the following two projects:

- Project # 94810, Reliable and Secure Communication in Wireless Sensor Networks

- Project # 94814, Three-dimensional Analysis for Nanoscale Materials Science

Org 8321: The NEPA review for project # 95215, Microscale Immune Study Laboratory, was initiated on December 1, 2005 with expected completion prior to start of laboratory activities. Completion of the NEPA review will be tracked through the on-line NEPA module.

Org 8321: The NEPA review for project # 93582, Portable Devices for Pen-side Disease Diagnostics, was initiated on December 7, 2005. Completion of the NEPA review will be tracked through the on-line NEPA module.

Org 8754: The NEPA review for Project # 94830, Tribological Studies of Microelectromechanical Systems, was initiated on December 7, 2005. Completion of the NEPA review will be tracked through the on-line module.

#### **Observations resulting from personnel interviews –**

Notification about NEPA requirement: 50% of those interviewed indicated that notification regarding NEPA compliance came through the LDRD process; the remaining 50% of respondents were notified by the SNL/CA NEPA SME. Recommend follow-up with the LDRD office to discuss notification process (March 31, 2006).

NEPA Module: Five of the six respondents used the online instructions available in the NEPA module. Only three of these five respondents found the instructions useful. One respondent, a foreign national, was unable to access the NEPA module directly. Four respondents found the questions in the module overly detailed for the type of work conducted in light laboratories and computer lab space. Recommend working with SNL/NM NEPA Team to modify the NEPA module, where possible, to address SNL/CA concerns (June 30, 2006).

#### **6. Findings – No findings**

##### **a. Finding Number:**

##### **i. Requirement:**

##### **ii. Condition as Noted:**

#### **7. Personnel Interviewed**

Jaideep Ray, Kevin McCarty, Nathan Hilton, John Goldsmith, Nathaniel Bowden, Mitchel Sukalski

### **Appendices**

#### **1. Assessment Team**

Barbara Larsen  
Rebeccah Schermesser

#### **2. Schedule**

October 10, 2005: Team planning meeting



October 17 – 20, 2005: Document review and database comparison

November 1 – 30, 2005: Interviews

December 1 – 15, 2005: Reporting

### 3. Checklist / Question Set

The following question set was used for email and telephone interviews.

1. How were you notified about the NEPA requirement for your LDRD?  
(notification from the LDRD office, notification from NEPA SME, discussion with your ES&H Coordinator, previous experience with process, etc.)
2. Did you use the online instructions and examples to complete the form? Were they helpful? Do you have any suggestions for improving the help feature?
3. Are there features or sections of the module that you were dissatisfied with?  
(difficult to use, did not add value, etc.)
4. How can the NEPA module, or the NEPA process in general, be improved to meet your needs?

### ➤ 4. FY 2006 LDRD Project List

Project #	NEPA #	Project Title	PI / PM	PI / PM Org #
93414	SNC05-0210	Remote Sensing of End-Event Timing for High Fidelity JTAs	Hilton / Lund	8233 / 8232
93419	SNC05-0199	Penalty Architecture and Implementation to Support ME2C2	O'Connell / Talbot	8226 / 8222
93494	SNA05-0490	New Low Cost material Development Technique for Advancing Rapid Prototyping Manufacturing Technology	Gill / Smugeresky	2432 / 8772
93497	SNC05-0170	Creating a Discovery Platform for Defined-Space Chemistry and Materials: Metal Organic Frameworks	Allendorf / Fintschenko	8324
93498	SNC05-0181	Virulence Membrane Protein Organization and Complex Formation in Francisella Novicida	Lane / Young	8321
93499	pending	Cell Modeling with Heterogenous, Dynamic Cell Membranes	Frink / Heffelfinger	8333 / 8330
93500	pending	Membrane Analysis of the Plague Bacterium, Yersinia Pestis, During Flea to Mammalian Host Adaptation	Rebeil / Dressendorfer	8331
93501	SNC05-0185	Shotgun Protein Sequencing	Faulon / Heffelfinger	8333 / 8330
93505	SNC05-0171	Distributed Micro-Releases of Bioterror pathogens: threat Characterization and Epidemiology from Uncertain Patient Observables	Ray / Hirano	8964 / 8152
93506	SNC05-0188	Large Scale Social Stimulation for Human Behavior Modeling	Berry / Sukalski	8961
93513	SNC05-0215	A Discovery Platform for Nanowire Electronics and Photonics	Talin / Lee	8764
93528	SNC05-0167	Nanocrystalline Aluminum alloys for Structural Applications	San Marchi / Goldsmith	8772
93530	SNC05-0194	Development of Stimulation and Validation Techniques for the Dynamic Behavior Metals at the Grain scale	Vogler / Chen	1647 / 8763
93538	SNC05-0154	LIGA-Fabricated Composite Right/Left-Handed Metamaterials	Forman / Kwon	8774
93540	SNC05-0190	Molecular Electronics: Theory and Experiment	Faleev / Lee	8764
93541	SNC05-0212	Design and Synthesis of Tailored Multi-Dimensional Nanoscale Structures	Lee / Even	8764 / 8760
93545	SNC05-0173	Biological Detection and Tagging using Tailorable, Reactive, Highly Fluorescent Chemosensors	McElhanon / Shepodd	8762
93549	pending	Engineering Intracellular Active Transport Systems as In Vivo Biomolecular Tools	Bachand / Dressendorfer	8331
93555	SNC05-0165	Enhanced Biomass Interconversion Through Protein and Metabolic Engineering	Simmons / Lee	8764
93558	SNA05-0484	Computational and Experimental Study of Nanoporous Membranes for Water Desalination and Decontamination	Debusschere / Kelley	8351 / 6245

Project #	NEPA #	Project Title	PI / PM	PI / PM Org #
93568	SNC05-0184	Small Acid Soluble Proteins for Rapid Spore Identification	Vandernoot / Young	8321
93569	SNC05-0183	Parallel Computing in Enterprise Modeling: A Hybrid Approach	Armstrong / Ammerlahn	8961 / 8112
93581	SNC05-0192	Enhanced NaI Scintillation Detectors	Bowden / Lund	8232
93582	SNC06-0028	Portable Devices for Pen-Side Disease Diagnostics	Einfeld / Young	6245 / 8321
93583	SNC05-0163	Plastic Neutron detectors	Doty / Goldsmith	8772
93585	SNC05-0211	Explosives Detection by Photoionization Mobility Spectrometry	Reichardt / Linker	8368 / 6418
93619	SNC05-0193	Hand Miniaturized BW Agent Detector for Real-time Detection of Concealed Agent Production	West / Fintschenko	8324
93638	SNC05-0161	Decision framing and Characterization Approaches for Complex Security Environments	Ringland / Brandt	8112
94810	SNC06-0011	Reliable and Secure Communication in Wireless Sensor Networks	Berry / Sukalski	8961
94814	SNC06-0012	Three-dimensional analysis for Nanoscale Materials Science	McCarty / Medlin	8761
94830	SNC06-0029	Tribological Studies of Microelectromechanical Systems	Antoun / Moody	8754
95215	SNC06-0027	Microscale Immune Study Laboratory	Singh / Kubiak	8321 / 8320